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MINISTRY OF PUBLIC WORKS

NOTE

ON THE

PROSPECTS OF THE NILE SUMMER SUPPLY

IN 1900

BY

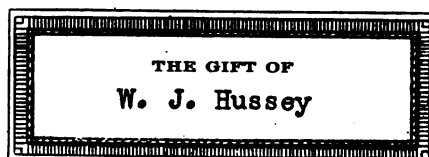
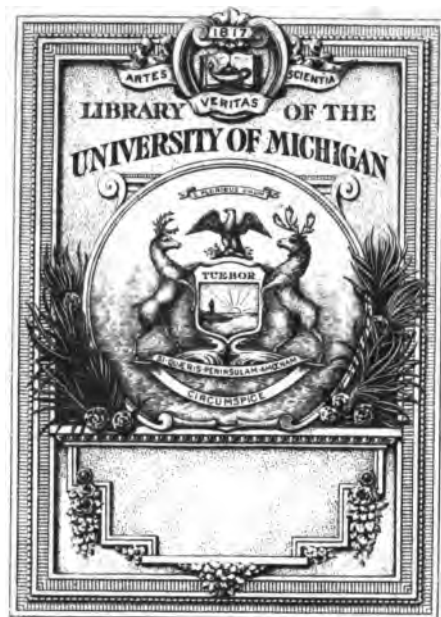
SIR WILLIAM GARSTIN, K. C. M. G.,

Under Secretary of State, Public Works Department.



CAIRO:

NATIONAL PRINTING OFFICE,
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Gift
W. J. H. S. S. S.
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The Ministry of Public Works, taking into consideration the importance of the subject, publishes for general information, the following Note by Sir William Garstin, K. C. M. G., Under Secretary of State, on the present state of the Nile.

Note on the prospects of the Nile Summer Supply in 1900.

The abnormally low water levels at present maintained in the Nile have given rise to some apprehension that a failure of the summer supply is to be anticipated. Under these circumstances, a short Note, describing the present conditions of the river, may be of use and may enable persons interested to draw their own conclusions for the future.

With this object in view, it is necessary to compare the Nile levels of the current year with those existing at the same period in former years of similarly low supply.

Unfortunately, owing to the absence of records, it is impossible to carry this comparison very far back. Previous to the year 1871, no accurate registers exist of the Nile gauges at Assouan. The gauges for the Nilometer at Rodah were recorded, but only the maximum and minimum heights attained are now obtainable.

Between 1871 and 1900, the two years of lowest supply were those of 1878 and 1889.

The summer levels of the years 1874 and 1892 were also very low, but in neither of these did the period of deficient discharge last for as many days as in the two first mentioned years; the winter supply of 1874 and 1892 was, moreover, well up to the average. They are not therefore as useful for comparison with the present year as are 1878 and 1889.

The following table shows the Assouan gauges and corresponding discharges, for the first half of January, in the years 1878, 1889 and 1900 respectively :—

DATE.	Year 1878.			Year 1889.			Year 1900.		
JANUARY.	GAUGE	R. L.	DIS-CHARGE.	GAUGE	R. L.	DIS-CHARGE.	GAUGE	R. L.	DIS-CHARGE.
	Pics K	Metres.	M ³ per sec.	Pics K.	Metres.	M ³ per sec.	Pics K.	Metres.	M ³ per sec.
1st	5 5	86·97	1369	4 12	86·59	1134	3 5	85·89	775
2nd	5 3	86·93	1341	4 11	86·56	1116	3 3	85·84	750
3rd	5 2	86·90	1320	4 10	86·54	1104	3 1	85·80	730
4th	5 2	86·90	1320	4 9	86·52	1092	2 23	85·75	710
5th	5 1	86·88	1308	4 7	86·47	1065	2 22	85·73	702
6th	4 23	86·84	1284	4 6	86·45	1055	2 22	85·73	702
7th	4 21	86·79	1254	4 6	86·45	1055	2 20	85·69	686
8th	4 20	86·77	1242	4 5	86·43	1045	2 18	85·64	666
9th	4 20	86·77	1242	4 4	86·41	1035	2 17	85·62	658
10th	4 19	86·75	1230	4 3	86·38	1020	2 16	85·60	650
11th	4 19	86·75	1230	4 2	86·36	1010	2 16	85·60	650
12th	4 19	86·75	1230	4 0	86·32	990	2 15	85·57	638
13th	4 17	86·70	1200	3 23	86·29	975	2 11	85·48	602
14th	4 14	86·63	1158	3 22	86·27	965	2 10	85·47	586
15th	4 13	86·61	1146	3 21	86·25	955	2 9	85·44	578

A glance at the above shows that the river levels at Assouan, throughout the first half of January, 1900, were considerably lower than in either of the two years with which comparison is made. On the 15th of the current month, the Assouan water level was lower by 2 pics 4

kirats, or 1·17 metres, than it was on the same date in the year 1878, and by 1 pic 12 kirats, or 0·81 metres, than it was on the 15th of January, 1889. Again, the discharge in cubic metres per second of the 15th of January, 1900, was, as nearly as possible, half of that of the 15th of January, 1878, and less than two-thirds of that of the same date in the year 1889.

A study of the Assouan gauges from 1871 to 1900, *i.e.*, for twenty-nine years previous to the current year, shows that the gauge of 2 pics 9 kirats, is, as a rule, reached in the month of March or April, and more often in the latter than in the former.

The summer volume of the river in the present year promises, should the present rate of fall be maintained, to be considerably below that of either of the two worst years on record, *viz.*, 1878 and 1889.

In the year 1878, the lowest level reached at Assouan was pics 0, kirats 8, or R.L. 84·29. This level was registered on the 7th and 8th June, and represents a discharge of 208 metres cube per second. In 1889, the river reached its lowest on the 4th June; pics 0, kirats 11, or R.L. 84·70, being recorded on the Assouan gauge. This level is equivalent to a discharge of 230 metres cube per second. As the river in 1900 is, at present, lower than it was either in 1878 or 1889, it follows, that if the fall continues at its present rate, the discharge, when the lowest point is reached, will be considerably below 200 metres cube per second. There is, however, the possibility that the rapidity of the fall may slacken and that timely rainfall in the southern Provinces of the

Soudan may cause the White Nile to rise, and either increase the discharge of the river, or arrest its decrease at the most critical period, viz., in the months of June and July.

It must be admitted that the latest accounts, from the Lake region and from the White Nile, do not tend to make the prospect of any diminution in the fall very probable. The Commissioner of Uganda, writing on the 16th October, 1899, stated that the water-level of the Victoria Nyanza Lake stood, at that time, two feet below the normal, and that the height of the Upper Nile at Wadelai, was four and a half feet below the average of previous years. He further reported, that there had been an almost entire absence of rain over all that part of Africa, more especially the vicinity of the Albert Nyanza Lake; so much so, that a famine was feared in those regions. The last telegrams received from the White Nile, report an unprecedented lowness of water in that stream. At the so-called ford of Abu-Zeid, 190 miles south of Khartoum, the water, at the end of December, was so shallow that boats could with great difficulty pass this reach of the river. Early in January, a further block to navigation was reported at Gebalain, some 40 miles further upstream. It is, consequently, not improbable, that the expedition which started from Khartoum early in last December, for the purpose of cutting the "Sadd" on the White Nile, may be forced to abandon this work for the present year, owing to the impossibility of forwarding the necessary supplies for the labourers up the river.

The knowledge, at present available, regarding the relations existing between the water levels of the Equatorial Lakes and those of the White Nile, is insufficient to permit of any reliable forecast being made of the effect that a given level in the above will produce upon the Nile at Assouan.

Admitting this, it is undeniable that the river at Assouan is, at the time of writing, lower than it has ever before been known to be in the month of January, and that the reports received, up to date, from the South, are the reverse of encouraging. Further, the continued drought in India points to the existence of abnormal atmospheric conditions over an immense area. Taking all the above circumstances into account, agriculturists in Egypt would seem to be warranted in their anxiety for the future of their crops, and it is evident that very special measures will have to be taken, if the latter are, by any means, to be saved. An early flood would greatly relieve the gravity of the situation, while on the contrary, a late arrival of the flood water would largely accentuate it. The measures indicated below will show the general lines upon which the Irrigation Service proposes to work during the season of scarcity of water.

In the first place, its efforts must be mainly directed towards an attempt to secure that crop, which is the most valuable of all to Egypt, viz., the cotton crop.

It is certain, even should the period of annual rainfall in Abyssinia and the Soudan be advanced, and an early flood result, that exceptional scarcity of water must exist

in Egypt during the coming months of April, May, June and July. The water available in the river during this period must, under any circumstances, be barely sufficient to preserve the cotton crop, and will certainly not suffice for the irrigation of rice as well. The rice districts are mostly situated in the northern tracts of the Delta, and at the tails of long canals. There will then be no possibility of forcing water down to these areas and irrigating the rice lands. Rice, moreover, being a plant which requires continual watering, could never, like cotton, stand the severe periods of rotation which will this year be inevitable. Owners of such lands who plant rice in 1900, will, it is to be feared, lose their entire crop. The only exceptions are those who possess lands adjacent to the river, and who can irrigate their rice by means of engines and pumps situated on the Nile banks. In order to assist such engines, earthen dams will be made in both branches of the river, with the object of preventing the ingress of the salt water from the Mediterranean, and keeping the river water sweet for drinking, as well as for irrigation purposes. It is probable that the amount of infiltration water in the river channels will suffice to keep these pumps working. Should this, however, not be the case, or should the water in the river become brackish, proprietors must understand that under no circumstances will they be permitted to transfer their engines and pumps from the Nile banks to the canals, as these last will certainly be unable to meet the extra demand which would thus be thrown upon them.

In order to secure an equitable distribution of water in Lower Egypt, the heads of the main canals drawing water from the river, upstream of the Barrage, will be regulated upon, so as to allow of each Province obtaining an amount of water proportional to its irrigated area.

Rotations will be framed with a view to meeting the special conditions of the present season. The lists of these are under preparation, and will shortly be published for general information. They will consist of two, and possibly of three, programmes. The second programme will contain a project for severer rotations than the first, and the third, if necessary, will again be severer than the second. These different programmes will be put into force according to the fall in the river levels. Thus, should the gauge at Assuan and the corresponding level upstream of the Barrage indicate the necessity for stricter measures than those contained in the first programme, the second will be introduced, and so again as regards the third. In each case, due notice will be given, through the Mudiriehs, to all interested, that by a certain date the system of rotations will be changed. As the alternative programmes will be published simultaneously, and at an early date, agriculturists will be able to inform themselves, in good time, of the possibilities which are in store for them, and cannot complain in the future that the advertised rotations were changed without due warning. In spite, however, of all the above precautions, there must always exist a possibility that the situation may eventually entail the enforcement of very special rotations not in the programme, which cannot at present be

foreseen or arranged for. Should such a contingency arise, every effort will be made to warn the public as early as possible.

Next to rotations, the most important step towards saving the cotton crop, or a portion of it; will be the prohibition of irrigation of "Sharaki" lands (for the Dhurra sowings) until the rising flood brings down sufficient water to permit of irrigating them without detriment to the area under cotton. Such a prohibition is imperative in a year like the present. The postponement of the Dhurra sowings entails no disaster to the country. It merely means that proprietors must revert to the procedure which existed, previous to the completion of the Barrage repairs, and the consequent improvement in water distribution. In former years, the Dhurra crop was never planted until the arrival of the flood water. The date was generally in August, as previous to that month the levels of the river did not permit of any irrigation upon an extended scale. Owing to the increased supply, the practice, of late years, has been to gradually advance the season of sowing, and the lands reserved for Dhurra are now generally irrigated in June and, in some localities, in May.

It is true, that if this crop is planted early, a better yield and price is secured than if it is planted late. At the same time, the injury caused to the country as a whole by a slight diminution in the out-turn of the maize crop, is insignificant as compared to the disaster which would be caused by a failure of the cotton crop. There will certainly not be sufficient water available in June

next for both crops, and therefore, as the cotton must be saved, if possible, at all costs, the irrigation of the Dhurra lands must be postponed until such date as the arrival of the flood shall permit. A Draft Law, prohibiting the early "Sharaki" irrigation, under severe penalties, is now being framed, and will shortly be submitted to the Government for approval.

In a year like the present, it will be advisable for all proprietors to plant their cotton at as early a date as possible, consistent with climatic conditions. It is most desirable that the young plants should be in an advanced state of growth before the period of scanty water supply shall arrive. The stronger and more vigorous the seedlings are, the more likely will they be to stand the inevitable want of water. Further, it will be as well to get the crop planted while there is a sufficient supply of water available. It is worth while running the risk of a possible double sowing, in order to ensure that the plants shall be well-developed when the critical time shall arrive.

It may not be out of place here to warn people, that nothing can be more deleterious to the cotton plants, which have survived a long and continued drought, than to drench them with water immediately upon the arrival of the flood. Such a measure would have an effect very similar to that of giving too much water at first to a man who had been suffering from long-continued thirst, and great caution should be used in the first waterings given to the plants after the supply in the river has been increased.

The Irrigation Service has been frequently requested to give its opinion as to the probable out-turn of the

